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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,947	01/20/2004	Brian Bowman	P2028/N9780	1250

7590 08/24/2005

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EXAMINER	
HOANG, TU BA	
ART UNIT	**PAPER NUMBER**
3742	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/760,947	BOWMAN ET AL.	
	Examiner	Art Unit	
	Tu Ba Hoang	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 20 January 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 07/14/05.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendments/Arguments

Applicant's amendments/arguments filed June 22, 2005 have been fully considered but they are not persuasive as for the following reasons:

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112: The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 as amended are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, there are insufficient antecedent bases for "the end faces" recited at line 2 and "the oxidation rate of surfaces" recited at lines 3-4 in the claim. It is unclear whether "end faces" and "surfaces" are intended to be the same, such "end faces" and "surfaces" must be clearly defined and structural cooperative relationships between these two, if any, should be provided. And since "surfaces" are undefined, their "oxidation rate" may not be the same and therefore lack antecedent basis. It is suggested that the phrase "in the electrode joint" to be inserted after "the electrodes" recited at line 2 and the phrase "surfaces of the electrode joint" recited at line 4 to be changed to "said end faces". Furthermore, the phrase "seal comprising a material having an oxidation rate such that the oxidation rate of surfaces of the electrode joint is reduced" recited at lines 3-4 renders the claim indefinite because it is unclear how such material of the seal has any effect to the oxidation rate of the electrode joint surfaces or has caused the reduction in oxidation of the surfaces. Clarification is needed.

In claim 8, similarly, there is insufficient antecedent basis for "the end faces" recited at line 4 in the claim. Since electrode configuration has not been provided, such "end faces" or surfaces in "an" electrode joint are undefined. The term "an electrode joint" recited at line 4 therefore should be replaced with "the electrode joint" as being intended for the previous citation of such joint at line 2.

In claim 10, the word "sheet" recited at line 3 should be changed to "seal" for being consistent.

In claim 13, the recitation of "an electrode joint formed of two electrodes" recited at lines 1-2 renders the claim indefinite because the joint is clearly formed between the two electrodes as intended but not formed of or by the two electrodes. Therefore, the term "formed of two" should be changed to "formed between two".

In claim 16, the term "an" recited at line 2 should be changed to "the" since such electrode joint recited in claim 16 is the same as the one recited in the preceding claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-7, and 13-16 as being best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Stroup (US 2,836,806). Stroup shows an electrode joint 12 or 12a (Figure 1 or 3) comprising two joined graphite electrodes 10a,11a (shown in Figure 3) and having a seal or pad (15 or 15a) interposed between end faces defined in the base of the sockets of the electrodes, wherein the seal or pad comprising a material which is compressed particles of exfoliated graphite (column 1, lines 64-65 and column 2, lines 8-20, i.e. skeletal powders or particles) so that lower electrical resistance is obtained (column 1, lines 62-63, i.e., the electrical conductivity of the pad is greater in the direction extending between the electrodes than it is in the direction orthogonal thereto due to the pad locations), each of the joined electrodes 10,11 or 10a,11a comprises a female threaded socket 14 or 14a, a pin or nipple or stub 12 or 12a comprising opposed male threaded sections which engage the female threaded socket of the electrodes to form the joint, and since both the electrodes and the seal or pad are made of the same graphite material, it is inherent that the pad or seal has an oxidation rate at least equal to or less than of the electrodes and due to its thickness and surface area contact, the electrical conductivity of the seal or pad 15 or 15a is also greater in the direction extending between the electrodes than it is in the direction orthogonal thereto.

Claims 1-2 and 13-14 as amended are rejected under 35 U.S.C. 102(b) as being anticipated by Paus (US 3,540,764) cited by the Applicants. Paus shows an electrode joint 2 (Figures 1-3) comprising two joined graphite electrodes 10,14 (shown in Figure 1) and having am expanded graphite ring assembly or seal 16,18 interposed between the end faces 22,24 of electrodes 10,14, in the joint 2 as shown in Figure 1, wherein the seal 16,18 comprising a material (i.e. expanded graphite material) which has great flexibility for providing low electrical resistance at the end faces and greater electrical conductivity in the direction extending between the electrodes (column 3, lines 39-41, i.e., material 16 and column 4, lines 19-27) and is compressible (column 5, line 8 and claim 1, i.e., compressible annular ring) or comprises of compressed particles of exfoliated graphite sheets 26,30 (i.e., expanded graphite material having density as set forth at column 4, line 72 to column 5, line 10) which are wound with an adhesive or binder is interposed between the sheets (column 3, lines 47-50) to form the seal having its outer diameter generally equal to the electrode joint outer diameter a shown in Figure 1 and a central opening around a bolster or nipple 12 shown in Figures 1 and 3, in which the sheets can be cut to predetermined thickness or size, and wherein each of the joined electrodes comprises a female

threaded socket, a pin or nipple with opposed male threaded sections which engage the female threaded socket of the electrodes to form the joint as shown in Figure 1. It is noted that as the seal expanded due to the compressed forces between the electrodes to fill gaps or voids between the joint, it is inherent that the oxidation rate at the end faces of the electrodes in the joint is reduced (i.e., preventing oxidation) and since both the electrodes and the seal containing graphite material, it is inherent that seal has an oxidation rate at least equal to or less than of the electrodes due to its thickness, flexibility characteristic, configurations (i.e., interposed layers) and surface area contact.

Claims 1-2 and 13-14 as amended are further rejected under 35 U.S.C. 102(b) as being anticipated by Kaufmann et al (US 3,140,967) recited in the previous Office Action. Kaufmann et al shows an electrode joint (Figures 1 and 3c) comprising two joined graphite electrodes 1,2 (column 2, line 46) and having a seal assembly or carbon cement pastes 9,10 (column 1, line 55) interposed between the end faces of the electrodes, wherein the seal or carbon cement paste comprises a material which is compressible (as shown in Figures 3b to 3c) and has the oxidation rate equal to or less than that of the electrodes (since carbon and graphite materials are equivalently and similarly materials, they inherently have similar structural and operational characteristics with the oxidation rate for carbon is likely less than of graphite).

Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Gazda (US 3,814,828). Gazda shows all of the claimed invention including an electrode joint (Figures 1 and 4-5) comprising two joined graphite electrodes 2,20 and having a seal formed of non-gaseous, non expandable fluid such as carbonizable filled the space 5,5a which is interposed between the end faces of the electrodes (column 4, lines 21-29, i.e., the bases of the sockets).

Claims 1-4 and 13-16 as amended are further rejected under 35 U.S.C. 102(b) as being anticipated by Vohler (US 4,015,068). Vohler shows an electrode joint comprising two joined graphite electrodes (i.e., baked carbon bodies) and having a seal interposed between the end faces of the electrodes or bodies, wherein the seal comprises compressed particles of exfoliated graphite with electrical conductivity is greater in the direction extending between the electrodes or bodies than in the direction orthogonal thereto (column 3, lines 17-25) and the oxidation rate of surfaces of the electrode joint or bodies can be reduced (i.e., to avoid oxidation of the bodies as set forth at column 2, lines 10-11.

Claims 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Fitton (US 5,645,284). Fitton shows a sealing gasket and method of preparing thereof, in which a sheet 25 of compressed particles of exfoliated graphite is provided and wound to form a spiral wound seal 26 (column 3, line 65 to column 4, line 10), wherein the sealing gasket has an outer diameter defined by ring 30 which is generally equal to the outer diameter of the object to be sealed (such as

pipe 11) and a central opening 31 (as shown in Figures 1, 2, and 3a,b), an adhesive or filler 28 is interposed between the layers of the spiral wound sheet 25, the sheet 25 is wound around a bolster 29 having a desired thickness and a diameter equal to the central opening 31 of the sealing gasket as shown in Figure 2.

It is noted that since the recited seal is intended "for use between end faces of electrodes" in an electrode joint or is "suitable for use" between end faces of the electrodes, no patentable weight will be given to intended uses since such end faces of the electrodes in an electrode joint are not germane to the patentability of the claimed process for preparing the seal.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-7 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paus (US 3,540,764) in view of Fitton (US 5,645,284). Paus discloses substantially all features of the claimed invention as applied to claims 1-2 and 13-14 above including the seal comprised an expanded graphite material which has great flexibility for providing low electrical resistance at the end faces and greater electrical conductivity in the direction extending between the

electrodes (column 3, lines 39-41, i.e., material 16 and column 4, lines 19-27) and is compressed into an annular ring having flexible graphite sheets 26,30 (i.e., expanded graphite material having density as set forth at column 4, line 72 to column 5, line 10) which are wound with an adhesive or binder is interposed between the sheets (column 3, lines 47-50) and having its outer diameter generally equal to the electrode joint outer diameter a shown in Figure 1 and a central opening around a bolster or nipple 12 shown in Figures 1 and 3, in which the sheets can be cut to predetermined thickness or size, and wherein each of the joined electrodes comprises a female threaded socket, a pin or nipple with opposed male threaded sections which engage the female threaded socket of the electrodes to form the joint as shown in Figure 1. Paus fails to show the seal comprises compressed particles of exfoliated graphite and has a concave cross-section or corrugated cross-section. Fitton shows a seal or sealing gasket 25 of compressed particles of exfoliated graphite is provided and wound to form a spiral wound seal 26 (column 3, line 65 to column 4, line 10), wherein the sealing gasket has a desired thickness and outer diameter defined by ring 30 which is generally equal to the outer diameter of the object to be sealed, a central opening 31 (as shown in Figures 1, 2, and 3a,b), an adhesive or filler 28 is interposed between the layers of the spiral wound sealing gasket 25, and the seal also has a concave cross-section or corrugated cross-section as shown in Figure 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Paus the sealing gasket as taught by Fitton in order to improve sealing function within electrode joint with the reduction in oxidation.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Frastaci et al (US 2005/0175061).

REMARK

Applicant's arguments with respect to the rejections of the claim have been considered but are moot in view of the new grounds of rejection.

The claims as now amended are further rejected under 35 U.S.C 112, 2nd as previously set forth above.

Regarding the rejection of claims 1-4, 6, 7, and 13-16 under 35 U.S.C 102(b) over Stroup (US 2,836,806), in light of the amendment with the recitation of "seal interposed between the end faces of the electrode", such amendment does not convince the Examiner that such end faces are defined different from the bases at the sockets of the electrodes in Stroup. The Examiner agrees that Stroup patent is to improve electrical conductivity at the base of the socket and as the pad or seal interposed within the sockets, it does not expose to the air and unlike the electrodes, the seal of Stoup will have the oxidation rate at least equal to or less than of the electrodes. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "the seal is placed in the middle of the joint, between the end faces of adjoining electrodes, for purposes of retarding oxidation", emphasis added) are not recited in the rejected claim(s). Although

the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Whether the seal or pad of Stroup has an oxidation rate different from or at least equal to or less than the electrodes may not be relevance unless such the recited end faces of the present application to be clearly defined.

Regarding Applicants' argument to the rejection of the claims over the references to Kaufmann et al, Gazda, similarly, in response to applicant's argument that the reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "the material employed is different than that of the claimed invention, and could not function in the same manner even if placed differently , i.e., different in form and function from the seal of the present application, emphasis added) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

In response to applicant's argument that "Fitton patent seal is in the fluid sealing business for the purpose of preventing fluid/material from leaking out and minimizing corrosion of a metal joint due to corrosion from within while in the present application, the seal is to prevent oxidation from getting in, thus the orientation of the inventive spiral wound material is in the direction of the highest resistance to oxidation, the present application seal function is to minimize oxidation from the outside, and the differences in configuration of the seal of Fitton and the present application including the range of compression which is relatively small"(emphasis added), a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (571) 272-4780. The examiner can normally be reached on Mon-fri from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tu Ba Hoang
Primary Examiner
Art Unit 3742

August 17, 2005